USSR

UDC 621.37c.234

AKIMOV, YU. K., ANDERT, K., KALININ, A. I., CHURIN, I. N., SHERSHEN, V. K.

"Time Measurements with a Germanium Detector"

Moscow, Pribory i Tekhnika Eksperimenta, No 6, 1971, pp 51-54

Abstract: The basic factors determining the time resolution of semiconductor detectors are 1) the occurrence of time fluctuations as a result of superposition of signals on noise from the detector and amplifier; 2) shifting of the circuit response time on variation of the signal amplitude and 3) dependence of the response time on variations of the collection of free charge carriers in the detector with time. These factors were considered when developing the described low-noise preamplifier with a buildup time of 5 nanoseconds and a high-speed shaper with compensation of the dependence of the time resolution on the amplitude dispersion and variations in the pulse front for time measurements with a germanium detector. When recording γ-quanta from ^{60}Co by a germanium detector with a volume of 3 cm^3 included for coincidence with a scintillation counter, a time resolution of 2.2 nanoseconds was obtained in the energy range of 0.07-1.33 megaelectron volts. The width of the coincidence curve on the 0.1 level of its height was 12.5 nanoseconds. A time resolution of 0.9 nanoseconds was obtained in a narrow energy range.

1/1

USSR

UDC 621.373.826

AKINOV, YU. A., BUROV, A. A., GOVORKOV, O. I., KRYUKOV, I. V., ROBICHENKO, G. V., STEPANOV, B. M.

"KGP-1M Semiconductor Quantum Generator with Electron Excitation"

V sb. Ispol'z. optich. kvant. generatorov v sovrem. tekhn. i med. Ch. 2-3 (Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3--collection of works), Leningrad, 1971, pp 15-20 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D376)

Translation: The KGP-1M laser designed for generation of a series of radiation pulses with the interferometric and shadow methods of investigating the optical inhomogeneities is described. The basic characteristics of the laser are as follows: The radiation pulse duration is 10 nanoseconds to 1 microsecond, the repetition rate is 100 hertz to 1 hertz, the radiation power is 100 watts to 1 watt. When operating in the pulse mode, the packet repetition rate is 100 hertz, the number of pulses per packet is 20-30, the pulse repetition rate in the packet is 100 megahertz to 1 gigahertz, the duration of the light pulses is 1-0.1 nanoseconds, and the radiation power per pulse is 100 watts. As the working medium of the semiconductor target, n-type gallium arsenide alloyed with Te is used with an impurity concentration of $1\text{-}3\cdot10^{18}$ cm^{-3}. At the temperature of liquid nitrogen, λ = 0.084-0.86 microns. There are 4 illustrations and a 3-entry bibliography.

1/1

USSR UDC: 621.385

AKIMOV, Yu. A., et al, Izmeritel'naya tekhnika, No 3, 1972, pp 3-5

ns and output current intensities of as much as 2 A. A photograph of some of these devices is also given.

2/2

·USSR· UDC: 621.385

AKIMOV, Yu. A. and FROMBERG, A. B.

"Electrovacuum Instrument Complex for Investigating Fast Processes"

Moscow, Izmeritel'naya tekhnika, No 3, 1972, pp 3-5

Abstract: This is a review article dealing with the results of achievements by Soviet scientists in the area of scientific instrument design for the period of 1958-1970. The scientists named are L. I. Andreyeva, V. P. Yegorov, S. A. Kaydalov, V. A. Nefed'yev, A. A. Ryzhov, and A. I. Yuzhin. Among the achievements indicated by the article are electronic-vacuum instruments for recording fast processes, such instruments as the ELU-09, ELU-10, and ELU-19, used as converters for recording gamma and x-rays; the ELU-FT, ELU-F5, ELU-F9, and others, which are fast electron multipliers; photoelements with broad-band coaxial output for recording and measuring laser pulsed light beams. A table of photoelectric devices of the FEK series is given presenting the rise time, output current intensity at 1 kV and 2 kV anode voltages, and maximum output current intensity for input light pulses. It is mentioned that the Karl Zeiss firm in East Germany manufactures the SKP series of controlled photoelectronic multipliers, the best of which have resolution times (pulse rise times) of 2.5

1/2

2/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144422

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE RESULTS OF MEASUREMENTS OF THE SPECTRUM OF THE PRIMARY COSMIC RAY PROTONS ON THE ENERGY RANGING FROM 10 TO THE 10TH POWER TO 10 TO THE 13TH POWER EV AND THE SPECTRUM OF ALL PARTICLES OF THE PRIMARY COSMIC RAYS RANGING FROM 10 TO THE 11TH POWER TO 10 TO THE 14TH POWER EV CARRIED OUT ON PROTON 1, 2, AND 3 SATELLITES. THE APPROXIMATING FUNCTION WHICH DESCRIBED THE PROTON SPECTRUM IS PRESENTED. IT IS SHOWN THAT THE SPECTRUM OF ALL PARTICLES CAN BE REPRESENTED BY SUPERPOSING THE OBTAINED PROTON SPECTRUM AND POWER SPECTRUM OF PARTICLES WITH CHARGES OF ABOVE OR EQUAL TO 2.Z.W.

FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--MEASUREMENTS OF THE PRIMARY COSMIC RAY SPECTRA IN THE 10 TO THE 10TH POWER TIMES 10 TO THE 14TH POWER EV ENERGY RANGE FROM PROTON 1, 2,
AUTHOR-(05)-AKIMOV, V.V., GRIGOROV, N.L., NESTEROV, V.E., RAPPORT, I.D., SAVENKO, I.A.
COUNTRY OF INFO--USSR, HUNGARY

SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY, AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS, VOLUME 1 ORIGIN AND GALACTIC
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--PRIMARY COSMIC RAY, PROTON SPECTRUM/(U)PROTON 3 SCIENTIFIC SATELLITE, (U)PROTON 2 UNMANNED LABORATORY, (U)PROTON 1 UNMANNED LABORATORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605060/F08 STEP NO--HU/2506/70/029/000/0517/0520

CIRC ACCESSION NO--AT0144422
UNCLASSIFIED

USSR

UDC 622.011.43

GRITSKO, G. I., AKIMOV, V. S., TSYTSARKIN, V. N.

"Description of the Mine Shoring Operation Using Structural Rheological Models"

V sb. Gorn. davleniye v kapital'n. i podgotovit. vyrabotkakh Kuzbassa (Rock Pressure in Major and Whole Workings in the Kuzbass-collection of works), Novosibirsk, "Nauka", 1969, pp 99-104 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V665)

Translation: An analytical description of the performance of timbering is realized by using a rheological model of a standard linear body, and by bringing in the equation of state

$$\sigma + \alpha \frac{d\sigma}{dt} = b + a_1 \frac{d\epsilon}{dt}$$

and its particular cases. Here σ = stress, ϵ = deformation, a, a_1, and b = constants.

M. N. Rozovskiy

1/1

USSR UDC: 621.317.763

ZAKHAR'YASHCHEV, L. I., AKIMOV, V. P.

"Wide-Band Thermal Compensation of SHF Resonance Wave Meters"

Tr. Ryazansk. Radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1970, Vyp. 23, pp 254-262 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A213)

Translation: A wave meter design is proposed which provides for complete compensation of the change in the geometric characteristics of the resonator under the effect of temperature, and also with a certain error permits compensation for the change in the dielectric constant of the air which fills the resonator. It is pointed out that measurement precision is improved appreciably without substantial material expenditures by using the SHF resonance wave meter. B. L.

1/1

USSR

UDC: 53.[illegible].2

[illegible]'YaSHCHEV, L. I. and AKIMOV, V. P.

"Thermally Compensated Cavity Resonator"

Leningrad, Izvestiya VUZ -- Priborostroyeniye, No. 10, 1970, pp 11-15

Abstract: This article proposes a type of thermally compensated cavity resonator which avoids the defect of most such instruments. That defect is that the conventional device does not permit interconnected thermal compensation processes to be realized along the length and diameter of the cavity. Mathematical expressions for the thermal compensation conditions of the device are derived, and a cross-sectional drawing of the cavity resonator is shown. When this resonator is used in a wavemeter, an expression for the relative measurement error is obtained. The authors conclude that their wavemeter offers full thermal compensation at one fixed frequency in the instrument's operating range and partial compensation over the entire range, and that its temperature measurement error is at least one order less than that of similar uncompensated devices.

1/1

USSR UDC: None

AKIMOV, V. N. and ROYZEN, I. I.

"Some Consequences of the Peripheral Interaction Theory"

Moscow, Yadernaya Fizika, Vol. 11, No. 2, 1970, pp 472

Abstract: Earlier papers have shown that a correct qualitative description of the characteristics of inelastic processes of the fireball type can be obtained by starting from the general limitations on the behavior of the elastic interaction amplitude and the Bethe-Salpeter equation. On the basis of this approach, the current paper considers three questions: the multiplicity in the peripheral interaction of high-energy particles; the inclination of vacuum trajectories at t = 0; the pre-asymptotic behavior of the cross section. The first two are answered by starting from the Bethe-Salpeter equation. The authors conclude, in considering the third question, that the existence of inelastic processes of the fireball type leads to a moving vacuum singularity: i.e., to elastic dispersion with a narrow diffraction cone. They make the further conclusion that the existence of a region of cross-section growth with energy is still not a unique confirmation of the existence of the Pomeranchuk band. They express their gratitude to D. S. Chernavskiy for his many comments.

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3/3 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132442

ABSTRACT/EXTRACT--THE GRAVIMETRIC METHOD PERMITS THE DETN. OF 15-60 MG RE AS (C SUB26 H SUB30 N SUB4 O SUB2 .H)REO SUB4 WITH A MAX. ERROR OF 0.52PERCENT RELATIVE. IN THE TITRN. METHOD, THE PPT. OF THE PERRHENATE OF IV FROM THE GRAVIMETRIC METHOD IS DISSOLVED IN 50-60 ML ME SUB2 CO AND TITRATED POTENTIOMETRICALLY WITH 0.1N NAOH OR ET SUB4 NOH IN A 3:1 C SUB6 H SUB6 DOUBLE BOND MEOH MIXT. BY USING A GLASS AND A CALOMEL ELECTRODE. THE METHOD ALLOWS THE DETN. OF 24-25 MG RE WITH A PLUS OR MINUS 3.1PERCENT ERROR. FACILITY: SCI.-RES. INST. ORG. INTERMED. DYES, MOSCOW, USSR.

UNCLASSIFIED

2/3 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERRHENATES OF ANTIPYRINE (I), DIANTIPYRYLMETHANE (II), DIANTIPYRYLMETHYLMETHANE (III), DIANTIPYRYLPROPYLMETHANE (IV), AND DIANTIPYRYLPHENYLMETHANE (V) WERE OBTAINED BY ADDN. OF 2PERCENT 1:1 PYRYLMETHANES,ACOH TO AN ACID (0.1-0.5N H SUB2 SO SUB4) SOLN. OF KREO SUB4. ALL THE PERRHENATES ARE DIFFICULTLY SOL. IN H SUB2 O WITH THE EXCEPTION OF THAT WITH I. THEIR COMPN. AND STRUCTURE WERE STUDIED. THE PERRHENATE OF I IS A WHITE POWDER SOL. IN H SUB2 O AND IN MOST OF THE ORG. SOLVENTS AND DECOMPS. ON MELTING. THE PERRHENATE OF II DISSOLVES IN MINERAL ACIDS AND ORG. SOLVENTS, DECOMPS. ON MELTING AT 190DEGREES; THE PERRHENATE OF III BEHAVES ANALOGOUSLY TO THAT OF II, M. 116DEGREES; THE PERRHENATE OF IV MELTS AT 198DEGREES AND THAT OF V AT 202DEGREES. PERRHENATES BEHAVE IN NONAQ. MEDIA AS MONOBASIC ACIDS AND CAN BE TITRATED BY ALKALIS. THE TITRN. CURVE HAS 1 JUMP, REPRESENTING THE NEUTRALIZATION OF THE CATION. THE PERRHENATE OF I IS THE MOST ACID, THOSE OF IV AND V THE WEAKEST ACIDS. THE SOLY. OF THE PERRHENATES DECREASES IN THE ORDER I GREATER THAN II GREATER THAN III GREATER THAN IV GREATER THAN V. THE BEST PRECIPITANT HOWEVER IS IV. THE SOLY. OF THE PERRHENATE OF IV INCREASES SOMEWHAT AFTER INCREASING THE ACIDITY OF SOLNS. A GRAVIMETRIC AND A TITRIMETRIC METHOD WAS DEVELOPED FOR RE DETN. BY USING IV AS PRECIPITANT. ALKALI AND ALK. EARTH METALS, ZN(II), AL(III), CO(II), FE(II), CU(II), CL PRIME NEGATIVE AND SO SUB4 PRIME NEGATIVE NEGATIVE DO NOT INTERFERE; MO(VI), W(VI), NO SUB3 PRIME NEGATIVE DO.

UNCLASSIFIED

1/3 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PERRHENATES OF ANTIPYRINE AND ITS DERIVATIVES. GRAVIMETRIC AND TITRIMETRIC DETERMINATION OF RHENIUM BY MEANS OF

AUTHOR-(05)-~~AKIMOV~~, V.K., BUSEV, A.I., ZAYTSEV, B.YE., YEMELYANOVA, I.A., GELFER, S.M.

COUNTRY OF INFO--USSR

A

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 518-25

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--RHENIUM, MINERAL, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0161 STEP NO--UR/0075/70/025/003/0518/0525

CIRC ACCESSION NO--AT0132442

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112561

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING AQ. SOLNS. OF ESTERS OF GERMANIC ACID (WITH PYROCATECHOL, PYROGALLOL, GALLIC AND PYROGALLOLCARBOXYLIC ACIDS) WITH ORG. BASES (DIANTIPYRYLMETHANE, DIANTIPYRYLMETHYLMETHANE, DIPHENYLGUANIDINE, PH SU34 ASCL, 3, PHENANTHROLINE, 8,HYDROXYQUINOLINE, BRILLIANT GREEN, METHYLENE BLUE, METHYL VIOLET AND CRYSTAL VIOLET) GAVE THE FOLLOWING COMPLEXES, WHICH WERE ANALYZED AND CHARACTERIZED BY IR SPECTRA (CURVES AND TABLES OF DATA SHOWN): TRICATECHYLGERMANATES OF: DIPHENYLGUANIDINE, O,PHENANTHROLINE, 8,HYDROXYQUINOLINE, TETRAPHENYLARSONIUM; SAME FOR TRIPYROGALLYL GERMANATE, SAME FOR TRIS(5,CARBOXYPYROGALLYL) GERMANATE ALONG WITH ANALOGS: DIANTIPYRYLMETHANE, DIANTIPYRYLMETHYLMETHANE, BRILLIANT GREEN, CRYSTAL VIOLET, METHYLENE BLUE, METHYLENE VIOLET; SAME FOR TRIS(4,CARBOXYPYROGALLYL) GERMANATE. ALL WERE COLORED CRYST. SOLIDS SPARINGLY SOL. IN H SU32 O AND READILY SOL. IN AQ. ACIDS AND ME SUB2-NCHO.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--[illegible]

TITLE--PHENOL GERMANATES -U-

AUTHOR-(04)-ASIMOV, V.K., MOSEV, A.I., DZOTSENIDZE, N.Ya., ZAYTSEV, V.Yu.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 329-35

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENOL, ORGANOGERMANIUM COMPOUND, PYROCATECHOL, DYE, COMPLEX COMPOUND, IR SPECTRUM, ORGANIC ARSENIC COMPOUND, HYDROXYL RADICAL, QUINOLINE, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1567 STEP NO--UR/0079/70/040/002/0329/0335

CIRC ACCESSION NO--AP0112561
UNCLASSIFIED

AKIMOV, VASILIY

vice president / RAZNOIMPORT

USSR UDC: 621.374.322:62-752.6

YELISEYEV, V. G., PIVOVAROV, A. N., AKIMOV, V. F.

"Stabilization of the Load of a Binary-Decimal Counter"

Mekhaniz. i Avtomatiz. Upr. Nauch-Proizv. Sb. [Mechanization and Automation of Control, Scientific-Production Collection], No 5, 1971, pp47-50 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A365 from the resume)

Translation: The distribution of load between the outputs of a counter connected to the inputs of a decoder is analyzed. Using a binary-decimal counter as an example, the authors show the influence of the sequence of code states of distribution of load and the possibility of improvement of the evenness of distribution of load by optimization of the connections between the counter and decoder, considering the code characteristics of each state (number) written in the counter. 2 figures; 2 references.

1/1

Acc. Nr. AP0045165

Abstracting Service: CHEMICAL ABST. 5-70

Ref. Code UR0191

91060v **Thermal properties of glass-fiber reinforced plastics studied by a torsion method.** Akimov, S. V.; Barkova, M. V. (USSR). *Plast. Massy* **1970**, (1), 70-2 (Russ). A single glass fiber, impregnated with a binder was subjected to free torsional vibrations. From the vibration period and damping the rigidity (G) (proportional to the shear modulus, J. K. Gillham *et al.*, 1963) and tan δ were obtained. Changes of G and tan δ with time and temp. in the 20-320° range were detd. for the following binders: P-2-3 (epoxy-polyester resin), EM (epoxy amine resin), AG-4 (phenolic resin), P-2-7 (epoxy-phenolic resin), P-2-4 (epoxy-thiokol resin), 27-63 (epoxy $PhNH_2$-phenolic resin), 25-34B (epoxy novolak phenolic resin), GM-75 [poly(diene imide)]. The decrease of the bending strength of P-2-7 with the time and heating temp. were detd. CPJR

REEL/FRAME
19780065

2/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124876

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW CLASSIFICATION OF RANDOM FUNCTIONS IS STATED. UNDER THIS CLASSIFICATION BOTH STATIONARY AND NONSTATIONARY RANDOM FUNCTIONS MAY BELONG TO THE SAME CLASS. THE METHOD OF THE DETERMINATION OF THE BELONGING OF A RANDOM FUNCTION TO THE CLASS R PRIME(N) SUBQ IS PRESENTED.

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CLASSIFICATION OF RANDOM FUNCTIONS AND METHOD OF DETERMINATION OF BELONGING TO CLASS R PRIME(N) SUBQ -U-

AUTHOR--AKIMOV, P.P.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 6, PP 13-20

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--FUNCTION ANALYSIS, RANDOM PROCESS, CLASS THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1222 STEP NO--UR/0103/70/000/006/0013/0020

CIRC ACCESSION NO--AP0124876

UNCLASSIFIED

USSR UDC 621.382.3

AKIMOV, M.A., KIR'YANOVA, V.M., KOLESNIKOV, V.G., SHCHEVELEV, M.I.

"Effect Of Dislocation Densities On The Paremeters Of Epitaxial-Planar Transistors"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn. pribory (Electronic Technics. Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 4(61), pp 39-42 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B241)

Translation: The effects were studied of dislocation densities on the breakdown voltage of the collector p-n junctions, the amplification factor with respect to the current, and the reverse current of the collector p-n junction. It is established that with an increase of the dislocation densities from 10^4 to 6.10^4 cm^{-2} the breakdown voltage is decreased and the amplification factor with respect to the current and the reverse current of the collector p-n junction are increased. Summary.

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USSR UDC: 51:621.391

AKIMOV, L. P.

"Concerning Synthesis of the Structure of Information Links in Large Systems"

Probl. sistemotekhniki--sbornik (Problems of Systems Analysis--collection of works), vyp. 1, n.p., "Sudostroyeniye", 1972, pp 8-22 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V593)

[No abstract]

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USSR

KONOCHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPITSKIY, Yu. A., BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIKHOMIROVA, V. A., Moscow, Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

specimen thickness. A formula is produced for the "viability factor" which, in combination with calculation of the values of Δt_i and t_{tr}, can describe the kinetics of development of fatigue cracks in various alloys. This factor expresses the sensitivity of the alloy to the development of the fatigue crack on the basis of the experimental characteristics of endurance of real alloys.

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USSR

UDC: 620.17.171

KONONCHUK, N. I., AKIMOV, L. M., VASIL'YEV, B. N., LAPITSKIY, Yu. A., BELYAYEV, M. S., BICHUTSKAYA, O. V., KOPYLOV, A. A., TIKHOMIROVA, V. A., Moscow

"Study and Evaluation of the Kinetics of Fatigue Rupture of Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 11, 1970, pp 19-23

Abstract: The results of an investigation of the fatigue resistance of heat-resistant alloys with symmetrical and asymmetrical loading cycles show significant and varied sensitivity to asymmetry in the loading cycle, depending on the type of alloy and test mode (temperature, number of loading cycles, etc.). This paper studies the kinetics of the development of fatigue cracks in heat-resistant alloy on the basis of the actual endurance characteristics with symmetrical and asymmetrical loading cycles. The process of specimen rupture was divided into two stages: the stationary stage before formation of the main crack and the nonstationary stage of development of the main crack to a certain depth, for example 10% of the

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UDC 620.171.2

USSR

SKLYAROV, N. M., KONONCHUK, N. I., ZHUKOV, S. L., ZHUKOV, N. D., VASIL'EV, B. N., AKIMOV, L. M., LAPITSKIY, Yu. A., BELYAYEV, M. S., KRIVONOSOV, G. S., ISHCHENKO, I. I., POGREBNYAK, A. D., and KUFAYEV, V. N. (Moscow, Kiev)

"Estimating the Heat Resistance of Heat-Resistant Alloys Under Actual Operating Conditions"

Kiev, Problemy prochnosti, No 1, 1971, pp 13-21

Abstract: Problems concerned with estimating the endurance of heat-resistant materials under unstable loading conditions are analyzed. A method is suggested for producing and using "secondary" endurance characteristics, increasing the accuracy of estimation and calculation of guaranteed durability under operating conditions and forced equivalent loading modes. These secondary characteristics represent the dependence of the durability of materials on combinations of preceding programed and subsequent stationary loads in various proportions. The formula of linear addition of damage applies. The secondary characteristics are produced by accelerated testing over limited test periods with extrapolation to the area of increased durability.

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2/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REVIEW ON THE BASIC CRIT. ASSEMBLIES OF THE BELOYARSK NUCLEAR POWER STATION OBTAINED DURING REACTOR START UP IS GIVEN. THE EFFECT OF THE FOLLOWING PARAMETERS WAS STUDIED. U ENRICHMENT, THE PRESENCE OF WATER IN WORKING CHANNELS, CONTROL AND PROTECTION CHANNELS AND THE EFFECT OF THE PRESENCE OF WATER IN THEM, AND THE N DISTRIBUTION IN THE SINGLE ASSEMBLIES.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CRITICAL ASSEMBLIES OF THE BELOYARSK NUCLEAR POWER STATION -U-

AUTHOR--AKIMOV, I.S.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(4), 321-6

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CRITICAL ASSEMBLY, NUCLEAR POWER PLANT, ENRICHED URANIUM, WATER/(U)BELOYARSK POWER REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0567 STEP NO--UR/0089/70/028/004/0321/0326

CIRC ACCESSION NO--AP0137652

UNCLASSIFIED

AKimov, G.G.

II-10. THERMODYNAMIC ANALYSIS OF EQUILIBRIUM IN THE Ge-H-Cl SYSTEM

[Article by G. G. Akimov, V. I. Maksimov, V. G. Koreshkin, S. S. Strel'chenko, Kaluga, Novosibirsk, <u>III Simpozium po Protsessam Rosta i [illegible] Poluprovodnikovykh Kristallov i Plenok</u>, Russian, 22-17 June, 1972 p 20]

On the basis of the thermodynamic calculation, the composition of the gas phase was determined for various temperatures and Cl/H ratios in the input flux for the equilibrium two-phase system comprising solid Germanium and the gas phase.

It was demonstrated that in the temperature range of 700-850°C most frequently used to grow epitaxial layers of Germanium from the gas phase, the basic equilibrium particles are H_2; HCl; $GaHCl_2$; $GeCl_2$.

The Germanium yield was defined as a function of the temperature of the process and the composition of the input vapor-gas mixture. The conditions of introduction of the growth process of the epitaxial Ge layers were recommended.

USSR

AKIMOV, G. A., et al, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova, Vol 71, No 7, 1971, pp 1,033-1,038

was disturbance of neuromuscular transmission. All branches of the nervous system were involved in the pathological process, but the morphological changes in the nervous system, which were of the type of an acute swelling, were generally reversible. Although slow recovery of the dogs that had not been sacrificed began on the 10th - 12th day after administration of the toxin, muscular weakness persisted for one month. The most active systems with the highest metabolism (the oculomotor apparatus and the bulbar system) were apparently affected first, but they also recovered fastest.

2/2

USSR

UDC 616.981.553

AKIMOV, G. A., LOBZIN, V. S., GAREMIN, Ye. M., ZHUK, L. N., and ZUBIK, T. A., Chair of Nervous and Infectious Diseases, Military Medical Academy imeni Kirov, Leningrad

"Data on the Diagnosis and Pathogenesis ofBotulism"

Moscow, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova, Vol 71, No 7, 1971, pp 1,033-1,038

Abstract: Observation of six patients with botulism showed that gastrointestinal disorders developed in only three of them; three patients exhibited only disturbances of the nervous system expressed primarily in oculomotor and and bulbar disorders. In order to investigate changes in the nervous system during botulism, 24 dogs were given intramuscular injections of botulinus toxin type A in a dose of 2,500 MLD for mice per kg. Various branches of the nervous system of 12 of the dogs were subjected to a pathonistological examination after the dogs were sacrificed on the 3d to 12th day after administration of the toxin. No signs of selective action of the toxin on the central motor structures were detected. There was evidently selective action on peripheral motor neurons. Correlation of clinical and morphological data indicated that the determining factor in the pathogenesis of paralytic syndromes

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USSR

MATKOVSKIY, V. S., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 16-19

intoxication, a reduction of per minute respiration with a resulting lowered level of oxyhemoglobin in arterial blood, and respiratory acidosis were noted. EKG data revealed predominantly hypoxic shifts in the myocardium, and the EEG data -- inhibitory processes in the cerebral cortex. Intensified cardiac activity served as a compensatory mechanism for respiratory insufficiency. The secondary shifts in the function of organs and systems in connection with disturbances of a metabolic and functional nature played a vital role in the pathogenesis of botulinus intoxication. Morphological shifts in the CNS were apparently caused largely by disturbances in the microcirculation and were reversible. In treating severe botulinus intoxication, special attention should be paid to timely correction of external respiratory insufficiency, with artificial ventilation of lungs most expedient.

2/2

USSR

UDC 616.981.553-092.9

MATKOVSKIY, V. S., TSYBULYAK, G. N., ZUBIK, T. M., ZHUK, L. N., AKIMOV, G. A., GAREMIN, Ye. N., GOGLOVA, R. L., KUSTOV, N. A., PASHKOVSKIY, E. V., and TIMOFEYEV, V. V., Chair of Infectious Diseases, Chair of Military Field Surgery, and Chair of Nervous Diseases, Military Medical Academy imeni S. M. Kirov, Leningrad

"The Pathophysiology of Experimental Botulism"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, 1971, pp 16-19

Abstract: A study was carried out of the disturbance of external respiration, gas content and acid-base state of blood, and of hemodynamic shifts with severe experimental intoxication with botulinus toxin. Fifty dogs were intoxicated with type A botulinus toxin. At the time of administration and at the peak of intoxication, the gas content of arterial and venous blood, hemoglobin, hematocrit, specific weight of blood and plasma, and content of sodium, potassium, lactic and pyruvic acid were determined. External respiration was studied by means of a type 7SS spirorheotachograph and circulation by the modified recommended cardiographic method. Biocurrents of the cerebral cortex were recorded on a four-channel electroencephalograph. At the peak of

1/2

USSR

GINZBURG, I. P., SOBKOLOV, B. N., AKIMOV, G. A.

"Determination of the Principal Flow Parameters in a Supersonic Stream of an Ideal Gas"

Leningrad, Uchenyye Zapiski Leningradskogo Gosudarstvennogo Universiteta, No 357, SER. MAT. NAUK, No 46, 1970, pp 38-55.

Abstract: This work suggests a refined approximation method for calculating the principal flow parameters in a supersonic stream of an ideal gas. The task of the work includes primarily determination of the gas dynamic parameters in various areas of the stream, as well as determination of boundaries of jumps in the stream and compression.

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USSR

UDC 621.394.144

AKIMOV, A. YE., BORMOTOV, N. N., KOLTYSHEVA, G. V., and MIRONOVA, L. A.

"Optimization of the Synchronization Process in Discrete Message Transmission Systems"

Moscow, Elektrosvyaz', No 11, 1970, pp 61-66

Abstract: The authors conduct a heuristic analysis of the synthesis of an ideal synchronization process. Possible approaches are considered for realizing ideal synchronization for Gaussian channels and for channels with fading. Synchronization accuracy characteristics are calculated along with false synchronization probability and the optimal thresholds for the synchrosignal receiver. The authors thank K. A. Meshkovskiy for his interest in the article. Original article: five figures, one table, 13 formulas, and 10 bibliographic entries.

1/1

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 026

CIRC ACCESSION NO--AP0130892

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE SCOPE, FACILITY AND THE FUTURE PROGRAMME OF THE LABORATORY CONSTRUCTED IN 1965 AT THE ARDATOVSKI ELECTRIC LIGHTING FACTORY AS AN AID TO THE EXPERIMENTAL AND CONSTRUCTIONAL SIDE OF THE WORK.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ON THE OPERATION OF ELECTRIC LIGHTING LABORATORY -U-

AUTHOR-(02)-BORMIN, V.V., AKIMOV, A.P.

A

COUNTRY OF INFO--USSR

SOURCE--SVETOTEKHNIKA (USSR), NO. 1, P. 20 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--VISIBLE LIGHT, ELECTRIC RESEARCH FACILITY, INDUSTRIAL FACILITY, TEST FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0130 STEP NO--UR/0311/70/000/001/0020/0020

CIRC ACCESSION NO--AP0130892

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0055073

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTENTS OF TH AND U WERE DETD. BY THE GAMMA SPECTROMETRIC METHOD IN KIMBERLITE SAMPLES FROM 20 YAKUTIA PIPES SITUATED IN 5 AREAS OF KIMBERLITE MAGMATISM. A HIGHER RADIOACTIVITY WAS DETECTED IN KIMBERLITES THAN IN THEIR TRAP COUNTRY ROCKS: TH 5.3-15 AND U 1.1-3.5 PPM. THE TH AND U CONTENTS IN KIMBERLITES WERE COMMENSURABLE WITH THOSE IN GRANITES. THE ENDOCONTACTS OF PIPES AND THE AREAS OF KIMBERLITES, CONTACTING LARGE BLOCKS OF COUNTRY ROCKS, WERE EXCEPTIONALLY HIGH IN U AND TH OFTEN 2-3 TIMES HIGHER THAN THEIR CONTENT INSIDE THE PIPES. THIS WAS ACCOMPANIED BY SIMULTANEOUS INCREASE IN K CONTENT BY 50-100 TIMES. DIFFERENCES IN DISTRIBUTION OF RADIOACTIVE ELEMENTS WERE DETECTED FOR MOST OF DIAMOND BEARING AND DIAMOND FREE KIMBERLITE. THE TH-U RATIO IN KIMBERLITES CONTG. DIAMONDS WAS 3-4. IT INCREASED TO 15-20 IN DIAMONDFREE KIMBERLITES. THE KIMBERLITE ROCKS WERE NOT SIMILAR TO THE ULTRABASIC ROCKS IN CONTENTS OF RADIOACTIVE ELEMENTS. THEY OCCUPY AN INTERMEDIATE POSITION, IN THE SERIES OF ROCKS OF PLATFORM ALK. MAGMATISM BETWEEN THE ALK. BASALT SERIES OF THE ACTIVATION ZONES AND THE CARBONATITES.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--LEVEL OF RADIOACTIVE ELEMENTS IN KIMBERLITES OF THE SIBERIAN PLATFORM -U-

AUTHOR-(02)-AKIMOV, A.P., SEMENOV, G.S.

A

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUR SSSR 1970, 190(4), 947-50

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS

TOPIC TAGS--RADIOISOTOPE, GAMMA SPECTROS COPY, MINERAL FORMATION ANALYSIS, ROCK, URNAIUM ORE, URNAIUM, THORIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0280 STEP NO--UR/0020/70/190/004/0947/0950

CIRC ACCESSION NO--AT0055073

UNCLASSIFIED

USSR

UDC 616.981.51]-022.38-039.616.3-008.1

FINOGAROV, Yu. P., SIDORENKO, G. I., TKACHENKO, A. V., GOLUBEVA, Ye. S., AKIMOV, A. A., VOLKOVA, R. S., and SHELAKOVA, V. V., Chair of General Hygiene, Second Moscow Medical Institute imeni N. I. Pirogov

"Bacillus cereus as an Agent of Food Poisoning in Man"

Moscow, Voprosy Pitaniya, No 3, 1970, pp 23-25

Abstract: During an investigation of food poisonings treated in several clinics and hospitals in Moscow, Moscow Oblast, and Roven'kovskiy Rayon, Luganskaya Oblast (Ukraine) since 1967, it was found that two general outbreaks, four familial outbreaks, and 29 isolated cases involving a total of over 150 persons were caused by Bacillus cereus. The microorganism was isolated in large quantities from the intestinal contents, vomited material, and suspected food products (sausage, meat and potato soup, stewed cabbage, boiled meat, sardines, canned duck and beef). Most of the cases were reported in the summer and fall. The course was generally mild and brief. After an incubation period of 10 to 16 hours, sometimes 4 to 6 hours, symptoms appeared - stomach pains, nausea, diarrhea. The symptoms subsided in 11 to 16 hours, less commonly in 24 to 48 hours. About 2% of the cases followed a more severe and longer (3 to 5 days) course.

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2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RECENT YEARS FOOD POISONINGS CAUSED BY BAC. CEREUS HAVE BEEN AN OBJECT OF LARGE SCALE STUDIES IN A NUMBER OF COUNTRIES. SINCE 1967 THE QUESTION AS TO THE ETIOLOGICAL ROLE OF BAC. CEREUS IN T H CAUSATION OF POISONINGS IN THIS COUNTRY HAS BEEN STUDIED AT THE CHAIR OF GENERAL HYGIENE OF THE 2D MOSCOW MEDICAL INSTITUTE IN COOPERATION WITH MICROBIOLOGICAL LABORATORIES OF THE SANITARY EPIDEMIC STATIONS OF THE MOSCOW D LUGANSK REGIONS. TWO MAJOR, 4 FAMILIAL OUTBREAKS AND 29 ISOLATED CASES OF THIS AFFECTION WERE REGISTERED IN THE PAST PERIOD. IN THE CASES UNDER REVIEW A DISTINCT SEASONAL NATURE AND A GREAT VARIETY IN THE CLINICAL COURSE COULD BE DISCERNED AMONG CAUSES (SUPPORTED BY BACTERIOLOGICAL ANALYSES) RESPONSIBLE FOR THE POISONINGS WERE PRODUCTS OF BOTH ANIMAL AND VEGETABLE ORIGIN. BACKGROUNDS OF CRITERIA FOR DIAGNOSING THE AFFECTIONS UNDER DI CUSION ARE OFFERED. FACILITY: KAFEDRA OBSHCHEY GIGIYENY II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIROGOVA.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--BAC. CEREUS AS A CAUSATIVE AGENT OF FOOD POI OONGS IN MAN -U-

AUTHOR-(05)-PIVOVAROV, YU.P., SIDORENKO, G.I., TKACHENKO, A.V., GOLDBERG, YE.S., AKIMOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 25-28

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOD CONTAMINATION, BACILLUS, POISON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1164 STEP NO--UR/0244/70/000/003/0025/0028

CIRC ACCESSION NO--AP0123141

UNCLASSIFIED

USSR

AKIMOV, A. G., Issled. provavleniy gorn. davleniya na glubok. gorizontakh shakht, Leningrad, 1971, pp 317-326

decrease and the angles of the total shifts should increase.

2. The maximum settling of the earth's surface with an increase in the depth of the working remains fixed but due to the practical unattainability of complete working at great depths, it should decrease more rapidly than it would on the basis of the recommended calculation methods. The degree of motion of the rock of the footwall should increase at great depths, as is indicated by the increase in frequency of cases of slipping of the earth of steep layers.

3. With the factor $H/m > 500$ there is no necessity for considering deformation in individual points of the syncline but sufficient to determine their maximum values.

4. Problems of calculating optimal dimensions of the protective barrier become very important with an increase in the depth. To solve these problems it is necessary to improve the methods for calculating shifts, deformations, and stresses in the zone of the bearing pressure on the basis of complex studies of the appearance of shifts and rock pressure. 12 ref. K. K. Glazenap.

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USSR

UDC 622.011.43

AKIMOV, A. G.

"General Laws for the Deformation and Motion of Rock in the Working of Deep Levels"

V sb. Issled. provavleniy gorn. davleniya na glubok. gorizontakh shakht (Study of the Manifestations of Rock Pressure in Deep Levels of Mines -- Collection of Works), Leningrad, 1971, pp 317-326 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V655)

Translation: The stress-deformation state of a layered rock massif in which clean mining was conducted over a horizontally located stratum is analyzed on the basis of elasticity theory methods. It is assumed that the process of movement has ended and the conditions for complete working of the surface are in effect. The following basic conclusions were obtained from the analysis:

1. The deformations and stresses increase with an increase in the depth of the working but the concentration of stresses decreases due to a relative decrease in the volumes of the rocks and the propagation of stresses to great distances from the working. The magnitudes of the boundary angles should also

USSR

KOZLOV, A. P., et al., Voprosy Onkologii, Vol 18, No 6, 1972, pp 65-70

The tumor growth inhibition in these cases amounted to 63 and 76%, respectively. Energy density of 25,000-28,000 joule/cm^2 caused some skin damage. The anti-tumor effect of the laser was higher in the case of small tumors when it was possible to irradiate the entire affected area.

2/2

USSR

UDC 616-006-08:615.849.19

KOZLOV, A. P., MOSKALIK, K. G., and AKIMOV, A. A., Institute of Oncology imeni N. N. Petrov, Academy of Medical Sciences USSR

"The Antitumor Effect of Laser Radiation in Relation to the Pulse Energy and the Radiation Rate"

Leningrad, Voprosy Onkologii, Vol 18, No 6, 1972, pp 65-70

Abstract. A neodymium laser with a wavelength of 10,600 Å, and an energy density of 12,000, 25,000-28,000 joules/cm^2 was used for irradiation of Ehrlich's carcinoma, skin cancer, cancer of the pancreas and Harding-Passy melanoma. The pulse duration was 1 msec. with an energy output of 300, 700-750 joule. The growth inhibition of Ehrlich's carcinoma by 22-25% was achieved with 1-2 laser pulses of 700-750 joules energy. A lower energy level was ineffective. In the case of tumor of the pancreas blastoma growth was inhibited by 69% when irradiated with 4-8 laser pulses (1-2 pulses every other day) of 700-750 joules. The growth of Harding-Passy melanoma was inhibited by 63% after five treatments with 1-2 laser pulses, with 1-2 days intervals between treatments. Growth inhibition of skin cancer after three treatments with 1-2 laser pulses of 700-750 joules was only 15%. The best effects were obtained with a single treatment of pancreas cancer and Harding-Passy melanoma with 3-7 and 4-7 laser pulses, respectively, of 700-750 joules

Oncology

USSR UDC 616-006.615.849.19

MOSKALIK, K. G., KOZLOV, A. P., and AKIMOV, A. A., Laboratory of High Energy, Institute of Oncology imeni N. N. Petrov, Ministry of Health USSR

"Use of Lasers in Oncology"

Moscow, Voprosy Onkologii, No 8, 1972, pp 97-105

Abstract: It appears from this review of the Soviet and foreign literature that laser radiation cannot replace the ordinary methods of treating cancer. It is effective primarily for localized, surface neoplasms of a precancerous and benign nature. Promising results have been achieved in the treatment of squamous cell carcinoma of the larynx, pigmented and nonpigmented basal cell epitheliomas, some malignant lymphomas, epidermoid carcinoma of the penis, mycosis fungoides, small melanomas, papillomas, angiomas, hemangiomas, fibromas, nevi, and so forth. Disadvantages include possible dissemination of surviving viable tumor cells through the lymphatics and blood vessels and difficulty in determining and regulating doses. The effects of laser radiation can be potentiated by the use of dyes to promote absorption of the radiant energy by the tumors, chemotherapeutic agents to increase tumor sensitivity to laser rays (e.g., tetracycline, vitamin K, pyridoxine), and ionizing radiation.
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Therapy

USSR UDC 616-006-092.08:615.849.19+615.847

KOZLOV, A. P., AKIMOV, A. A., and MOSKALIK, K. G., N. N. Petrov Institute of Oncology, Ministry of Health USSR

"Treatment of Experimental Tumors With Laser Radiation Combined With Fast Electrons"

Moscow, Voprosy Onkologii, No 6, 1973, pp 93-97

Abstract: In nonpurebred C57Bl and $CC_{57}W$ mice with transplanted Harding-Pasey melanoma, B_{16} melanoma, and squamous cell carcinoma, laser radiation combined with fast electrons inhibited tumor growth to a much greater degree than did either agent alone. For example, the growth of the Harding-Pasey melanoma was inhibited 68 to 73% and 55 to 64% by laser radiation and fast electrons alone, respectively, but 90 to 92% when both agents were used. After transplanted Harding-Pasey melanomas were 5 to 6 mm in diameter, the average survival time of the animals exposed to laser rays combined with fast electrons was 92 days compared to 67 and 80 days after laser radiation and fast electrons alone, respectively. The survival time of the untreated controls was 56 days.

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2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE PERIOD OF FRUITITION ON AN ACID SOD PODZOL SOIL THE TITLE NODULES WITH A P CONTENT OF 0.277PERCENT DEVIATE IN THEIR CONTENTS OF AL, MN, CA, K, AND S, THE NODULE-ROOT RATIO BEING 0.04, 0.33, 0.36, 0.27, AND 0.54, RESP., THAT OF CA-MG IS 0.47. THE REQUIREMENTS FOR ATM. N FIXATION SEEMS TO BE LOW FOR CA AND K; P, S, AND MG ARE MORE INPORTANT. FACILITY: INST. FIZIOL. RAST., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SELECTIVE ACCUMULATION AND EXCLUSION OF INDIVIDUAL MINERAL SUBSTANCES IN SOYBEAN NODULES -U-

AUTHOR-(03)-RATNER, YE.I., AKIMOCHKINA, T.A., SAMOYLOVA, S.A.

A

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (), 15-22

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LEGUME CROP, SOIL STRUCTURE, PLANT PHYSIOLOGY, TRACE ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1893 STEP NO--UR/0485/70/000/002/0015/0022

CIRC ACCESSION NO--AP0127294

UNCLASSIFIED

A UDC: 621.317.08/.09

USSR

TEVEROVSKIY, V. I., GLADKOV, V. D., AKIMOCHKIN, I. E.

"Equipment for Analyzing and Monitoring a Group of Quantum-Mechanical Time and Frequency Standards"

Dok. Nauchno-tekhn. seminara "Metrologiya v radioelektron." Sektsiya, Ch. 2 (Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics, Summaries, Part 2), Moscow, 1970, pp 27-30 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A203)

Translation: To assure high metrological reliability of a groups time and frequency standard based on quantum-mechanical oscillators, it is proposed that a signal be shaped whose phase (frequency) is the average of the phases (frequencies) of the separate oscillators. It is pointed out that this method is particularly applicable to quantum-mechanical oscillators in view of the small frequency difference between oscillators of this kind. In designing the averaging device, provision is made for periodic automatic phase control of the oscillators to bring the phase to that of the averaged signal. Information is given on the equipment developed. Z. L.

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USSR

PETROV, A. K., et al., Poroshkovaya Metallurgiya, No 3, Mar 71, pp 9-14

hydrostatic pressing with subsequent sintering had a fine-grain structure with evenly distributed carbides. The structure corresponded to a hardness of 65 HRC after tempering at 560° and 61 HRC after tempering at 620°. This indicates the possibility of producing blanks from atomized powders of high speed steel.

2/2

UDC 621.762.224:669.14.018.253

USSR

PETROV, A. K., LEVITIN, V. V., MIROSHNICHENKO, I. S., AKIMENKO, V. B., ANDREYEVA, A. YA., BATENEVA, M. K., GOLOVKO, V. A., LABUNOVICH, O. A., ORLOV, YU. G., and ORMAN, R. Z., Ukrainian Scientific Research Institute of Special Steels, Alloys and Ferroalloys, Dnepropetrovsk State University

"Study of Atomized Powders of High-Speed Steel and Blanks Made of Them"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 9-14

Abstract: This work was performed in order to study the structure of powders of high-speed steel produced by atomizing of liquid steel with a stream of pure argon applied to a stream of metal through a slit diaphram at a pressure of 6-8 atm. For comparison, one melt was atomized using compressed air at 14-16 atm under industrial conditions. The structure and phase composition of the initial powder, powder after heat treatment, and blanks made from the powder were studied. Blanks produced by

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USSR

PETROV, A. K., et al., Poroshkovaya Metallurgiya, No 3, Mar 71, pp 9-14

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USSR

UDC 621.762.224:669.14.018.253

PETROV, A. K., LEVITIN, V. V., MIROSHNICHENKO, I. S., AKIMENKO, V. B., ANDREYEVA, A. YA., BATENEVA, M. K., GOLOVKO, V. A., LABUNOVICH, O. A., ORLOV, YU. G., and ORMAN, R. Z., Ukrainian Scientific Research Institute of Special Steels, Alloys and Ferroalloys, Dnepropetrovsk State University

"Study of Atomized Powders of High-Speed Steel and Blanks Made of Them"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 9-14

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2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE OF THE CARRIER MOBILITY IN P-PB TELLURIDE IS USUALLY DESCRIBED BY MU EQUALS SUB MU 0 T PRIME NEGATIVEK (2 IS LESS THAN K IS LESS THAN 3). BASED ON THE NONPARABOLIC CHARACTER OF THE CONDUCTION BAND SPECTRA AND ACOUSTIC SCATTERING MECHANISM, A THEORY IS GIVEN TO ACCOUNT FOR SUCH A TEMP. DEPENDENCE. VALUES OF THE THEORETICALLY CALCD. AND EXPT. DETD. COND. IN THE TEMP. RANGE 100-400DEGREESK ARE IN GOOD AGREEMENT. FACILITY: CHERNIGOV. PEDINST. IM. SHEVCHENKO, CHERNIGOV, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--TEMPERATURE DEPENDENCE OF CARRIER MOBILITY IN P-LEAD TELLURIDE -U-

AUTHOR-(02)-STARIK, P.M., AKIMENKO, N.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 340-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LEAD COMPOUND, TELLURIDE, TEMPERATURE DEPENDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1940 STEP NO--UR/0185/70/015/002/0340/0342

CIRC ACCESSION NO--AP0118902

UNCLASSIFIED

Pathology

USSR UDC 616.24-002-022.7:576:851.2]-092.9

ABKAROVICH, G. F., and AKIMCHENKOV, N. A., Ivano-Frankovsk Medical Institute

"Experimental Enterococcal Pneumonia in White Rats"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 137-139

Abstract: Within 18 hours of intratracheal infection of rats with a broth culture of Enterococci (strain 809), pneumonic foci were covering an entire lobe. These and other changes (inflammation, multiple hemorrhages) intensified until the 40th day, when the process began to subside and concentrate in the perihylar zone with the lower lobes of both lungs involved. Pure enterococcal cultures were isolated from the lungs of 60 of the 69 experimental animals. By the 40th day the elastic fibers of both blood vessels and lung tissue were undergoing fragmentation, thickening, and gradual defibrillation. Pneumonia persisted in the animals that survived to the 68th day along with symptoms of peribronchitis and hyalinosis of the walls of small blood vessels.

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USSR

AKILOV, G. A., IAN UzSSR, Seriya Fizicheskikh i Matematicheskikh Nauk,
No 4, 1971, pp 3-8

piecewise-continuous functions. It is required to find a $u(t)$, $t_0 \le t \le t_1$, among the permissible controls such that the solution $[x(t), y(t)]$ of systems of equations (1), (2) minimizes the functional

$$I(u) = \varphi(x_1(t_1), y_1(t_1), x_2(t_2), y_2(t_2)) \quad (3)$$

where it is assumed that the scalar function φ and also

$$\operatorname{grad}_{x_k} \varphi = \left\{\frac{\partial \varphi}{\partial x_k^1}, \ldots, \frac{\partial \varphi}{\partial x_k^p}\right\}, \quad \operatorname{grad}_{y_k} \varphi = \left\{\frac{\partial \varphi}{\partial y_k^1}, \ldots, \frac{\partial \varphi}{\partial y_k^q}\right\}$$

are continuous on E_n. Bibliography of three titles.

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USSR

AKILOV, U. A., IAN UzSSR, Seriya Fizicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 3-8

where $u_k=\{u_k^1,\ldots,u_k^r\}$ (here and everywhere $k=1, 2$) are the vectors which determine the controlling actions on the object, $u_k\in U_k\{a_k^\rho\leqslant u_k^\rho\leqslant b_k^\rho,\ \rho=\overline{1,r}\}$; $a_k=\{a_k^1,\ldots,a_k^r\}$, $b_k=\{b_k^1,\ldots,b_k^r\}$ are constants; $f_k(x_k, y_k, u_k, t)=\{f_k^1(x_k, y_k, u_k, t),\ldots,f_k^p(x_k, y_k, u_k, t)\}$, $g_k(x_k, y_k, u_k, t)=\{g_k^1(x_k, y_k, u_k, t),\ldots,g_k^q(x_k, y_k, u_k, t)\}$ are functions which are defined and continuous, together with the derivatives $\frac{\partial f_k^i}{\partial x_k^\mu}, \frac{\partial g_k^j}{\partial x_k^\mu}, \frac{\partial f_k^i}{\partial y_k^\nu}, \frac{\partial g_k^j}{\partial y_k^\nu}$ $(i, \mu=\overline{1, p};\ j, \nu=\overline{1, q})$ on E_k for all $u_k\in U_k$ and t in the interval $t_0\leqslant t\leqslant t_2$; the quantity t_1 satisfies the inequality $t_1\leqslant\theta$, θ is a fixed constant in the interval $t_0<t<t_2$. At time t_0 the initial state of the object is given: $x(t_0)=x_0$, $y(t_0)=y_0$. The variable $x(t)$ varies in the class of continuous functions throughout the entire interval $t_0\leqslant t\leqslant t_2$, and the quantities $y(t)$, $u(t)$ vary in the class of

USSR

UDC 519.3:62-50

AKILOV, U. A., Institute of Cybernetics With the Computing Center of the Uzbek Academy of Sciences

"Concerning a Problem in Optimum Control"

Tashkent, IAN UzSSR, Seriya Fiziko-Matematicheskikh Nauk, No 4, 1971, pp 3-8

Abstract: The author considers a controlled object whose state at any time t in the closed interval $t_0 \leqslant t \leqslant t_2$ is characterized by the n-dimensional vector $\{x, y\} = \{x^1, \ldots, x^p, y^1, \ldots, y^q\}$ $(p + q = n)$, which belongs to the n-dimensional vector space E_n. Let the motion of this object on interval $[t_0, t_1]$ be described by the system

$$\frac{dx_1}{dt} = f_1(x_1, y_1, u_1, t), \quad g_1(x_1, y_1, u_1, t) = 0, \tag{1}$$

while motion on the interval $[t_1, t_2]$ is described by the system

$$\frac{dx_2}{dt} = f_2(x_2, y_2, u_2, t), \quad g_2(x_2, y_2, u_2, t) = 0; \tag{2}$$

1/3

USSR

UDC: 538.383

BARANOV, I. A., AKILIN, V. I., Moscow Aviation Technology Institute

"Influence of Rotor Weight on the Change in Axial Rigidity of Gyromotors"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 2, 1973, pp 76-79

Abstract: The authors consider the effect of rotor weight on axial rigidity of a gyromotor, assuming that all elements except the ball bearings are rigid. Thus the mathematical model is an oscillatory system made up of a mass (the rotor) suspended to the stator by two elastic elements (the bearings). Formulas are derived for calculating the change in axial preloading on the bearings, and the change in axial rigidity of the gyromotor. It is found that the axial component of rotor weight causes an appreciable change in the axial rigidity of the gyromotor as well as in axial preloading of the bearings. With an increase in the axial component of rotor weight there is at first a slight reduction in axial preloading, and then an abrupt increase. At the same time, the axial rigidity decreases. The change in rigidity and loading depends to a considerable extent on the magnitude and sign of the difference in axial rigidity of the motor bearings.

1/1

2/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125001

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROTATION STRENGTH (RI), THE TRANSITION, THE DICHROISM (D), AND THE DEGREE OF CIRCULAR POLARIZATION (C) ARE STUDIED IN THE SERIES YEUO SUB2, (C SUB2 H SUB5 CO SUB2) SUB3 (ME EQUALS K, NA SUB4, RB, CS, AND NA). LINEAR RELATIONS WERE FOUND BETWEEN RI AND THE CATION DIMENSION AND BETWEEN RI AND C AND D. THE DEPOSITION OF ENERGY LEVELS IN UO SUB2 IS DISCUSSED. FACILITY: MOSK. FIZ. TEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--[illegible] OF THE LUMINESCENT AND SPECTROPIC PROPERTIES OF URANYL COMPOUNDS WITH THEIR STRUCTURES -U-

AUTHOR--(03)--[illegible]KOV, V.I., KIZEL, V.A., KRASILOV, YU.I., MADIY, V.A., AKIMOV, V.S., Z.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 572-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE, URANIUM COMPOUND, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2013 STEP NO--UR/0048/70/034/003/0572/0575

CIRC ACCESSION NO--AP0125601

UNCLASSIFIED

USSR UDC 539.4:536.453

MEKHED, G. N., MINTS, R. S., AKIF'YEVA, O. I., TOROPOV, V. M.

"Flow Curves for Nickel-Base Alloys"

V sb. Protsessy formoizmeneniya met. i splavov (Processes of Deformation of Metals and Alloys--collection of works), Moscow, "Nauka", 1971, pp 140-144 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V884)

Translation: A study was made of the effect which molybdenum and zirconium have on the mechanical properties of Ni-Nb-Al alloys in the cast state at heat-treat temperatures. The mechanical properties were determined by studying specimens on the MK-20 machine at temperatures of 900, 1 000, and 1 100°C. From the working diagrams, the maximum tangential stresses τ_{max} and octahedral shear q_n were computed, and flow curves were plotted. The results show that doping nickel-base alloys with Mo and Zr has a favorable effect on the high-temperature strength of these alloys, which may be attributed to the solubility of these elements in each of the structural components of the alloys, and to the refining action of Mo and Zr on the grains of the metal and on the boundaries between them. Authors' abstract.

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USSR

MEKHED, G. N. et al., Protsessy formoizmeneniya met. i splavov, Moscow, "Nauka", 1971, pp 128-129

breaking point of NIAN-2 alloy at room temperature in the deformed state is 2.5 times the breaking point of the alloy in the cast state. The increase in strength of type NIAN alloys after deformation may be attributed to cold hardening and deformation aging. Authors' abstract.

2/2

Materials

USSR

UDC 539.4:536.453

MEKHED, G. N., MINTS, R. S., MALKOV, Yu. S., TOROPOV, V. M., [redacted], O. I.

"Investigation of the Mechanical Properties of Type NiAl Alloys in the Cast and Deformed State"

V sb. Protsessy formoizmeneniya met. i splavov (Processes of Deformation of Metals and Alloys--collection of works), Moscow, "Nauka", 1971, pp 122-125 (from RZh-Metallurgiya, No 10, Oct 71, Abstract No 10V883)

Translation: The mechanical properties (breaking point, relative lateral contraction, relative longitudinal extension) of type NiAl alloys (Ni, Ti, Al) were determined in the temperature range of 20-1100° by a standard procedure. The results bore show that the strength drops sharply mechanically with an increase in testing temperature. The ductility properties of the alloys remain stable with an increase in temperature up to a certain point, after which they increase quite sharply. Addition of boron and zirconium to NiAl-2 alloy increases the strength properties of the alloy appreciably throughout the entire temperature range. It was found that deformation increases the strength and ductility of NiAl type alloys. The

1/2

2/2 022 UNCLASSIFIED PROCESSING DATE--19OCT70

CIRC ACCESSION NO--AP0048478

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SURFACE EFFECTS CAN BE NEGLECTED IN THE STUDY OF COLLECTIVE VOL. EXCITATIONS OF SUFFICIENTLY HEAVY NUCLEI; SUCH EXCITATIONS CAN BE REGARDED AS OSCILLATIONS OF NUCLEAR MATTER. IN SUCH A MODEL, THE INTERACTION OF SLOW PIONS, E, AND OTHER PARTICLES WITH NUCLEI CAN BE CONSIDERED AS A SCATTERING OF THESE PARTICLES ON THE FLUCTUATIONS OF NUCLEAR MATTER. THESE FLUCTUATIONS ARE STUDIED IN THE FERMI LIQ. MODEL WHEREIN BOTH THE NUCLEAR AND ELECTROMAGNETIC INTERACTIONS BETWEEN THE N ARE TAKEN INTO ACCOUNT. ELEC. FORCES MODIFY, IN AN ESSENTIAL WAY, THE CHARACTERISTICS OF LONGWAVE FLUCTUATIONS OF THE NUCLEAR MATTER D. AND CHARGE D. THE ELECTROMAGNETIC INTERACTION LEADS TO 2 EFFECTS: TO A SPLITTING OF THE MASSES OF QUASI PARTICLES, AND TO AN ADDNL. POTENTIAL INTERACTION ENERGY BETWEEN CHARGED QUASI PARTICLES. IN THE EXPRESSIONS GIVING THE CORRELATION FUNCTIONS OF THE FLUCTUATIONS, THERE ARISE SHARP MAX. FROM A PROPAGATION IN NUCLEAR MATTER OF COUPLED OSCILLATIONS OF THE D. OF MATTER AND OF CHARGE. INFLUENCE OF THE ELEC. FORCES ON THE SCATTERING OF SLOW PIONS BY NUCLEI IS CONSIDERED. BOTH THE ELEC. INTERACTIONS OF INCIDENT PIONS WITH NUCLEAR P, AND THE INTERACTIONS BETWEEN THE N IN NUCLEAR MATTER ARE TAKEN INTO ACCOUNT. IT IS NECESSARY TO CONSIDER THE ELEC. FORCES FOR MOMENTUM TRANSFERS WHICH DO NOT EXCEED 30 MEV-C.

FACILITY: KHAR'KOV. GOS. UNIV., KHARKOV, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THEORY OF FLUCTUATIONS AND SCATTERING OF SLOW PIONS IN NUCLEAR MATTER -U-

AUTHOR-(02)-AKHYEZER, I.A., BARTS, B.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 168-77

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PION SCATTERING, HEAVY NUCLEUS, NUCLEAR MODEL, EXCITED NUCLEUS, COULOMB INTERACTION, OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0186 STEP NO--UR/0367/70/011/001/0168/0177

CIRC ACCESSION NO--AP0048478

UNCLASSIFIED

USSR

A

AKH'YAN, A. M., and KAGANOV, I. R.

"Manufacture of Complex-Shaped Articles of Iron-Free Zirconium"

Moscow, Ogneupory, No 7, Jul 70, pp 51-54

Abstract: The technology has been developed for the manufacture of complex-shaped structural parts of iron-free zirconium by slip casting in gypsum molds. Assemblies are produced by casting their structural elements individually, then fastening them together with zirconium slip separately in freshly cast or air-dry form. This technology has been used to produce the channels of flat, linear electromagnetic pumps and other structural parts. Photographs of the gypsum molds and channels are presented.

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2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CL SUB3 CCO SUB2 H PPT. FROM RAT BRAIN HOMOGENATE WAS TREATED WITH ETOH AND CENTRIFUGED TO GIVE AN EXT. CONTG. 10PERCENT BRAIN PROTEINS. ADDN. OF NH SUB4 OH, CHOLINE, ACETYL CHOLINE OR ET SUB4 NOH TO THIS EXT. PPTD. A PROTEIN 2PERCENT OF WHICH WAS H SUB2 O SOL., 14PERCENT SOL. IN 0.1M ACOH BUFFER, AND 6PERCENT SOL. IN 12PERCENT ACOH. WITH THE REMAINDER SOLUBILIZED BY TREATMENT WITH ACOH FOLLOWED BY ADDN. OF WATER TO 16PERCENT CONCN. OF ACID. SUBSTITUTION OF THE QUATERNARY AMMONIUM BASES BY KOH OR NAOH PRODUCED IRREVERSIBLY DENATURED PROTEIN, 2PERCENT OF WHICH WAS H SUB2 O SOL., WITH THE REMAINDER COMPLETELY INSOL. IN THE ABOVE SOLVENT SYSTEMS.

FACILITY: TBILIS. GOS. UNIV., TBILISI, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE-- 27NOV70

TITLE--PROTEINS DISTINGUISHING POTASSIUM AND SODIUM IONS FROM AMMONIUM IONS AND QUATERNARY AMMONIUM BASES -U-

AUTHOR-(03)-AKHVLEDIANI, K.S., AKHVLEDIANI, M.K., SHADURI, M.I.

A

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(3), 677-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN, ION, POTASSIUM, SODIUM, AMMONIUM, RAT, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0210 STEP NO--UR/0251/70/057/003/0677/0679

CIRC ACCESSION NO--AP0135706

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CL SUB3 CCO SUB2 H PPT. FROM RAT BRAIN HOMOGENATE WAS TREATED WITH ETOH AND CENTRIFUGED TO GIVE AN EXT. CONTG. 10PERCENT BRAIN PROTEINS. ADDN. OF NH SUB4 OH, CHOLINE, ACETYL CHOLINE OR ET SUB4 NOH TO THIS EXT. PPTD. A PROTEIN 2PERCENT OF WHICH WAS H SUB2 O SOL., 14PERCENT SOL. IN 0.1M ACOH BUFFER, AND 6PERCENT SOL. IN 12PERCENT ACOH. WITH THE REMAINDER SOLUBILIZED BY TREATMENT WITH ACOH FOLLOWED BY ADDN. OF WATER TO 16PERCENT CONCN. OF ACID. SUBSTITUTION OF THE QUATERNARY AMMONIUM BASES BY KOH OR NAOH PRODUCED IRREVERSIBLY DENATURED PROTEIN, 2PERCENT OF WHICH WAS H SUB2 O SOL., WITH THE REMAINDER COMPLETELY INSOL. IN THE ABOVE SOLVENT SYSTEMS.

FACILITY: TBILIS. GOS. UNIV., TBILISI, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE-- 27NOV70

TITLE--PROTEINS DISTINGUISHING POTASSIUM AND SODIUM IONS FROM AMMONIUM IONS AND QUATERNARY AMMONIUM BASES -U-

AUTHOR-(03)-AKHVLEDIANI, K.S., AKHVLEDIANI, M.K., SHADURI, M.I.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(3), 677-9

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN, ION, POTASSIUM, SODIUM, AMMONIUM, RAT, BRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0210 STEP NO--UR/0251/70/057/003/0677/0679

CIRC ACCESSION NO--AP0135706

UNCLASSIFIED

ILLEGIBLE

USSR

UDC 612.766

AKHVLEDIANI, K. S., LOGUA, G. SH., LOMOURI, I. D., Tbilisi State University

"Synthesis of Acetylphosphorylcholine and Its Acetylcholine-like Activity"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 2, 1972, pp 403-407

Abstract: Acetylphosphorylcholine was synthesized to check the proposition that in the case of fermentative acetylation of phosphorylcholine, not acetylcholine but acetylphosphorylcholine is formed which has acetylcholine-like biological activity. The acetylphosphorylcholine and phosphorylcholine were analyzed by radio activity. The substances were separated by paper chromatography and electrophoresis. The acetylcholine activity was tested on the rectus rectus abdominis of a frog. The proposition was proved correct.

1/1

USSR UDC 591.1.05

AKHVLEDIANI, K. S., LOGUA, G. SH., KEKENADZE, L. V., and LOMSURI, I. D.
Tbilisi State University

"A Method of Direct Microdetermination of Phosphorylcholine and Some Other Esters of Phosphoric Acid"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR, Vol 66, No 2, May 72, pp 437-439

Abstract: A new method of direct microchemical determination of phosphorylcholine based on a change in the optical density of a phosphomolybdate solution has been developed. A phosphorylcholine solution (0-240 γ/ml) is added to a reagent solution containing 2% phosphomolybdic acid acidified with 0.1 N HCl to pH 5.3±0.1. Optical density is measured at λ = 358 mμ and the level of phosphorylcholine is determined from a calibrated titration curve. This method is suitable for determination of other phosphate and pyrophosphate esters.

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AKHVERDYAN, S.

SO: JPRS 52950
09 APRIL 1971

P/S

ARMENIAN ANIMAL HUSBANDRY FACES IMPORTANT TASKS

[Article by S. Akhverdyan, deputy director of the Armenian Scientific Research Institute for Animal Husbandry and Veterinary Sciences: "Reserves in Animal Husbandry"; Yerevan, Kommunist, Russian, 23 February 1971, p 2]

The tasks presented to science in the draft Directives on the new Five-Year Plan require that every scientific work force find its role in the common struggle to accelerate scientific and technical progress. In this regard in the new Five-Year Plan the scientific work force at the Armenian Scientific Research Institute of Animal Husbandry and Veterinary Science face important problems in studying the scientific basis of the further improvement of existing and the creation of new breeds and breeding groups of livestock and poultry, raising and feeding them rationally, properly using local feed resources and working on problems of animal productive technology.

[illegible] the rapid development of a good feed base for [illegible] during the new Five-Year Plan [illegible] Institute [illegible] determined to [illegible] [illegible] for increasing the productivity of [illegible] field [illegible] [illegible] of fodder [illegible].

[illegible] should be given to veterinary research. [illegible] the Institute are developing highly effective [illegible] in the struggle [illegible] infectious diseases of livestock and poultry.

- 4 -

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R002065900028-6

AKHVERDOV, I. N., LAVRENGA, L. YA., Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1095-1098

in absolute value. It is concluded that the introduction of water soluble measurements to concretes makes it possible to obtain the required water permeability in fabricating centrifuged tubes in the one-layer method of centrifuging.

2/2

USSR

UDC 666.972

AKHVERDOV, I. N., Corresponding Member of the Academy of Sciences BSSR,
LAVREGA, L. YA., Belorussian Polytechnical Institute

"Structure and Strength of Fine-Grain Polymer Cement Concrete"

Minsk, Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1095-1097

Abstract: The effect of polymer additives on the formation of porosity and strength of fine-grained concrete is investigated. It is noted that one of the most important characteristics of the structural properties of concrete is its porosity and that not only is the absolute value of the porosity important but also its physical character. The physicomechanical properties of polymer cement centrifuged and vibrated concrete, steamed and hardened under normal moisture conditions and also under combined conditions of seven days in water and the remaining time in air were studied. It was found that the addition of E-49 epoxy amine resin considerably reduces the capillary porosity of concrete and simultaneously increases the closure. E-89 water-soluble resin assists the increase in porosity by expanding the centrifuged concrete and raising its homogeneity. The strength of steamed polymer cement samples increases with the age of the concrete and exceeds the strength of samples without the additive

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USSR

USSR

AKHVERDOV, I. N., SKOL'SKIY, A. YE., Doklady Akademii nauk BSSR, Vol. 9, Apr 72, pp 317-320

E_f and E_s are the deformation moduli of the filler and the matrix; f_{ad} is the adhesion of the filler to the matrix; V_f is the volume of the filler per unit volume of the concrete; L_f is the geometric characteristic of the filler; ν_f and ν_s are the Poisson coefficients of the filler and the matrix; and k_f and k_s are the coefficients for the operating conditions of the filler and matrix under contained deformation. A method was developed for obtaining a nonhomogeneous optically active plastic with physicomechanical characteristics similar to concrete. The material can be used in fabricating reinforced models of concrete structures in studying their stress state by a polarization-optical method both in the elastic stage and in the process of crack formation. Experimental studies of the initial stage of crack formation in reinforced concrete and in the reinforced model of nonhomogeneous plastic show that the nature of crack formation in the model corresponds to crack formation in the original. The nonhomogeneous plastic breaks up in the same way as concrete: the crack arises in the matrix and with an increase in the load it either bends the filler along the interface or rests against its top, corresponding to the start of cracks in neighboring segments of the matrix.

2/2

USSR

UDC 666.01'.42:691.54

AKHVERDOV, I. N., Corresponding Member of the Academy of Sciences BSSR, SMOL'SKIY, A. YE., Institute of Construction and Architecture of the State Committee for Construction BSSR

"Modeling the Physicomechanical Properties of Structurally Nonhomogeneous Materials"

Minsk, Doklady Akademii nauk BSSR, No. 4, Apr 72, pp 317-320

Abstract: Studies were conducted to establish the assumptions for modeling the physicomechanical properties of nonhomogeneous materials such as concrete and reinforced concrete, although it is noted that the technique can be used for other heterogeneous materials. It is assumed that the concrete represents a two-component body, the cement and the filler, and that the functional relationship of its mechanical properties in terms of the parameters of the structure can be expressed in the following manner:

$$R_c = f(R_s; R_f; R_{ad}; E_f; E_s; V_f; b_f; \gamma_f; \gamma_s; l_f; l_s),$$

R_c is the limiting state of the concrete (strength and deformability limits); R_f and R_s are the strength characteristics of the filler and the cement stone;

1/2

USSR UDC: 666.015.42:691.54

AKIMERDOV, I. N. and MAIGULIS, L. N., Institute of Construction and Architecture of the State Committee for Construction of the Byelorussian SSR

"Electrophysical Method for Determining the Porosity and Strength of Concrete"

Minsk, Doklady Akademii Nauk BSSR, Vol XVII, No 1, pp 36-39

Abstract: The authors propose a non-destructive method for controlling the quality of Portland cement and large filler based concrete using the electrophysical parameters P_b/P_B and the saturation of the porous material with $Ca(OH)_2$ ion solution, where P is the specific, volumetric, electric resistance of the concrete whose capillary-porous space has been saturated by a liquid phase with the resistivity P_b. Methodology is presented for setting up calibration curves for the correlation between porosity, strength, and the electrophysical parameters of the concrete. Experimental data are given. It is shown that in comparison to the ultrasonic pulse method, the electrophysical method makes it possible to evaluate the quality of concrete with just a single calibration curve construction. The electrophysical method can be used for determining the quality of concrete both of assembled type and mass structures without resorting to destructive methods. Original article: three formulas, two figures, and three bibliographic entries.

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. USSR

AKHVERDOV, I. N., SIMONOVICH, R. G., Vestsi AN BSSR, Ser. Fiz.-Tekhn. Navuk, No 1, 1973, pp 16-23

depends on their specific surfaces; coarse-ground microfiller must be added in a greater quantity than fine-ground since fire shrinkage increases considerably with a high concentration of fine-ground filler. The optimum ratio f for ordinary cements lies in the range of 0.4-1.0. When sands with a high concentration of fractions finer than 0.315 mm are used in heatproof concrete there is no need to add the fine-ground filler if the ratio of the specific surface of these fractions to that of the cement is about 0.4.

2/2

USSR UDC: 666.015.42:691.54

AKHVERDOV, I. N., SIMONOVICH, R. G., Belorussian Polytechnical Institute

"Influence Which the Degree of Dispersion of Portland Cement and Microfiller Have on the Properties of Heatproof Sintered Porous Concrete"

Minsk, Vestsi Akademii Navuk BSSR, Seryya Fizika-Tekhnichnykh Navuk, No 1, 1973, pp 16-23

Abstract: The paper gives the results of an investigation of the effect which the specific surface of portland cement and aluminosilica additive has on the heat resistance of sintered porous concrete. It is found that the heat resistance of the concrete after calcining is proportional to the initial strength of the dried specimens. Coarse-ground cement (specific surface less than 2700 cm^2/g) and very fine-ground cement (specific surface greater than 6000 cm^2/g) reduce the technological indices of heatproof concrete. Samples with a specific surface of portland cement of 4200 cm^2/g show the maximum strength after heating with an optimum ratio $f = S_a A/S_c C$, where S_a and S_c are the specific surfaces of additive and cement, and A and C are their respective percentage weight concentrations in the mix. The weight concentration of microfiller and cement in heatproof concrete

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ILLEGIBLE

2/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117901

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRIEF DESCRIPTION OF A PORTABLE AUTONOMOUS COMPLEX EEG ANALYZER WHICH MAKES IT POSSIBLE TO PERFORM CONTINUOUS PROCESSING OF BRAIN BIOPOTENTIALS WITH RESPECT TO A NUMBER OF AMPLITUDE, PHASE, AND FREQUENCY PARAMETERS. THE DEVICE CONSISTS OF THREE PAIRED FREQUENCY FILTERS, THREE CHANNELS FOR MEASURING PHASE SHIFTS BETWEEN ANY TWO EEG LEADS, AND A CHANNEL FOR ANALYZING THE OSCILLATION FREQUENCY OF THE ENVELOPE OF THE MAIN RHYTHM. THE DEVICE IS DISTINGUISHED BY THE POSSIBLITY OF PERFORMING CONTINUOUS COMPLEX MEASUREMENTS OF BIOELECTRIC ACTIVITY WITHOUT THE USE OF EXPENSIVE COMPUTER HARDWARE AND WITHOUT REQUIREING THE PARTICIPATION OF HIGHLY QUALIFIED ENGINEERING PERSONNEL IN THE EXPERIMENTS. FACILITY: AKADEMIIA MEDITSINSKIKH NAUK SSR SEVERO ZAPADNYI ZAOCHNYI POLITEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MULTIPARAMETER AUTONOMOUS EEG ANALYZER FOR OPERATIVE TESTING OF THE FUNCTIONAL STATE OF A HUMAN OPERATOR -U-

AUTHOR-(05)-ATABEKYANTS, A.I., AKHUTIN, V.M., BUNDZEN, P.V., KUCHUK, G.A., NEROSLAVSKIY, I.A.

COUNTRY OF INFO--USSR

A

SOURCE--FIZIOLOGICHESKII ZHURNAL SSSR, VOL. 56, MAR. 1970, P 443-446

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL APPARATUS, ELECTROENCEPHALOGRAPHY, BRAIN, BIOPOTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0676 STEP NO--UR/0239/70/056/003/0443/0446

CIRC ACCESSION NO--AP0117901

UNCLASSIFIED

ILLEGIBLE

UDC 612.014.482.4

RADIOBIOLOGICAL EFFECTS AFTER 3-YEAR GAMMA IRRADIATION OF DOGS

[Article by Yu. G. Grigor'yev, B. A. Markelov, V. I. Popov, A. A. Akhunov, A. V. Ilyukhin, T. P. Isessarskaya, A. V. Sedov, and V. A. Korsakov; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 1, pp 3-7, 1972, submitted for publication 25 March 1971]

Abstract: This paper summarizes the results of a three-year radiobiological experiment on dogs. In several experimental series chronic irradiation with varied dose rates (21 to 150 rad per year) and chronic irradiation combined with acute exposures (total doses of 190 rad per year) were applied. Clinical hematological, physiological and cytological examinations demonstrated that the animals maintained a satisfactory clinical condition and exhibited no serious organic radiation damage. However, a decrease in their compensatory potentialities and a change in their reactivity were noted.

A lack of adequate information in the literature on the biological effects induced by constant exposure to ionizing radiation in the doses possible during prolonged space flights served as a basis for conducting a special experiment on a large number of dogs. The scientific program for the experiment, the irradiation conditions and the results obtained one and two years after beginning this experiment have been published earlier (Yu. G. Grigor'yev, et al., 1968, 1970).

This paper gives materials obtained after three years of irradiation of the experimental animals. Data on the number of animals, doses and irradiation conditions are given in Table 1.

After three years of the experiment the condition of the animals, evaluated from the results of systematic examinations (inspections, temperature measurement, measurements of body weight, pulse and respiration rates), remains satisfactory. The incidence of disease in the irradiated groups (conjunctivitis, dyspepsia, etc.) was low and did not exceed the corresponding incidence in the group of control animals.

AKHUNOV, A. A.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R002065900028-6

AKHUNOV, A. A.

JPRS 56030
18 May 72

UDC 615.849.1.015.46

STATE OF NATURAL IMMUNITY OF DOGS DURING CHRONIC GAMMA IRRADIATION UNDER THE INFLUENCE OF AMITETRAVITE

[Article by S. I. Fal'mina, V. A. Zuyeva, N. I. Gvozdeva, M. P. Shitneva, A. A. Akhunov and E. S. Rubenkova; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 2, March-April 1972, pp 24-29, submitted for publication 11 February 1971]

Abstract: The effect of amitetravite, a biological protectant, on the state of natural immunity was investigated in experiments on dogs exposed to three-year chronic gamma irradiation simulating the dose characteristics of a space-flight environment. Long-term irradiation of dogs with low Co^{60} gamma ray dosages induced wavelike changes in the natural immunity of the test animals. Regular administration of amitetravite produced a normalizing effect on the state of skin autoflora, favored a relative stability of the indices of blood phagocytic activity, and restrained the development of autoimmune reactions.

It has been established in numerous investigations that body exposure to ionizing radiation in large doses, leading to the development of acute or subacute radiation sickness, is accompanied by an impairment of many body functions. Among these impairments a leading place is occupied by a decrease in natural and artificial immunity (P. N. Kiselev and P. A. Buzini; N. N. Klemparskaya, et al.; V. M. Shilov; R. V. Petrov, and others). However, the problem of the effect of prolonged chronic irradiation in small doses on immunobiological reactivity and the influence exerted on it by protective-therapeutic measures has not been adequately covered.

The objective of this study was an evaluation of the effectiveness of one of the means of biological defense, the drug amitetravite, on the state of natural immunity in dogs subjected to prolonged chronic gamma irradiation. This study is a part of a complex investigation with chronic irradiation which in dose level and intensity simulated the radiation conditions of a prolonged space flight (Yu. G. Grigor'yev and B. A. Markelov, and others).

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STUDY OF CHOLESTEROL METABOLISM IN RATS EXPOSED TO [illegible] CHRONIC GAMMA IRRADIATION

[illegible] Article by [illegible] Akhunov, [illegible] Moscow, Kosmicheskaya Biologiya i Meditsina (Space Biology and Medicine), Russian, 1972, pp 12-[illegible]

The literature contains information on the influence of chronic radiation on lipid metabolism. For example, exposure to the irradiation of rats for a period of 1½ months [illegible] of 0.05 R/day there were substantial changes in lipid metabolism (ie. V. Danesheva, et al., 1967). Irradiation of human subjects working with sources of ionizing radiation over a period of several years revealed that the blood cholesterol content in eight out of 37 cases was increased to 250 mg% (I. D. Kolomina, 1968). K. Konev, Z. Sapozhnikova (1969), in a study of 135 persons working for a period of several years with sources of ionizing radiation (the annual irradiation dose was 100-600 mrad), noted changes in some indices of lipid metabolism.

It should be noted that information on the effect of chronic irradiation on cholesterol metabolism in the human and animal body is extremely limited and contradictory.

The purpose of this investigation was a determination of the effect of chronic irradiation over a period of three years on the cholesterol content in the serum of dogs.

The materials in this study constitute part of complex investigations for study of the biological effects in dogs subjected to irradiation simulating the probable radiation effect during prolonged space flights (Yu. G. Grigor'yev, et al., 1968).

AKHUNOV, A.A.

PRs, 5[illegible]

14 Sep 72

USSR UDC 539.213

IMANOV, L. M., Corresponding Member of the Azerbaydzhan SSR Academy of Sciences, ZUL'FUGARZADE, K. E., AKHUNDOV, A. A., GADZHIYEV, G. A., Institute of Physics, Azerbaydzhan SSR Academy of Sciences

"Investigation of Intramolecular Motions in Some Dialkyl Phthalates by the Method of Polymer Matrix Isolation"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, Vol 29, No 7, 1973, pp 11-12

Abstract: The paper gives some results of a study of radio-frequency spectra of relaxation absorption in the dimethyl phthalate-polystyrene and di-n-butyl phthalate-polystyrene system with ether content of 20% by weight. The dielectric loss tangents of both systems were measured on eight frequencies ranging from $5 \cdot 10^2$ to $7 \cdot 10^5$ Hz at temperatures from 40 to 150°C. On the basis of analysis with regard to the magnitudes of dipole moments corresponding to the observed dielectric absorption regions for dimethyl and dibutyl phthalates, as well as the spectrum of iodobenzene in the polystyrene matrix with a single absorption region, it is concluded that the low-frequency contribution to the absorption regions is from the motion of individual molecules of the dialkyl phthalates as a whole, while the high-frequency component is due to intramolecular motions.

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UDC 591.105:577.15:598.126

YUKEL'SON, L. Ya., AKHUNOV, A., SADYKOV, E., and SOROKIN, V. M.

"Some Properties of the ATP-Pyrophosphatase and 5'-Nucleotidase of the Venoms of Vipera lebetina turanica and Naja oxiana E."

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 6, 1970, pp 8-11

Abstract: Venoms of Central Asian snakes contain various enzymes, including the highly active ATP-pyrophosphatase and 5'-nucleotidase. The object of this study was to determine the effects of the pH, temperature, and duration of incubation on the activity of these two enzymes in the venoms of Vipera lebetina turanica and Naja oxiana E. Desiccated venom samples were obtained from the Herpetology Laboratory of the Uzbek SSR Academy of Sciences. The activity of the enzymes was determined according to the amount of dissociated inorganic phosphates. The incubation samples contained 0.1 ml of a 0.1% venom solution, 0.1 ml of a 1.2% ATP solution or of a 1.5% ATP solution, and 0.8 ml of a buffer solution. Results indicate that the ATP- pyrophospnatases of both venoms have an optimum pH of 8.4-9.0 and an optimum temperature of 37-38°C. The corresponding values for the 5'-nucleotidases are pH 8.4-8.5 and 37-39°C. The best incubation period is 1 hour. Both ATP-pyrophospha-tases are thermolabile. The 5'-nucleotidases are more resistant to high temperatures.

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USSR

UDC 598.196:577.15

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"Isolation of ATP-Pyrophosphatase and 5-Nucleotidase From Viper Venom"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 4, 1971, pp 67-68

Abstract: Gel filtration of a 10% solution of viper venom yielded four fractions. ATP-pyrophosphatase and 5-nucleotidase activity were detected in the first fraction (and in part in the second fraction). The specific activity of the ATP-pyrophosphatase in the first fraction was 10.8 times higher than that of the whole venom, while 5-nucleotidase activity was 10.2 times higher. Further purification of this fraction by ion-exchange chromatography resulted in four fractions, but enzyme activity was detected in only the first. The specific activity of ATP-pyrophosphatase and 5-nucleotidase was 13.5 and 16.6 times higher, respectively, than that of the whole venom.

USSR UDC 632.95

SIMONOV, V. D. MANINA, F. A., GERASIMOVA, A. I., ALYAKIN, YU. N., ARSENOV, T. F., and VYAZOVKINA, G. I.

"Determination of the Basic Substance in Herbicidal Preparations of Yalan"

V sb. Probl. analit. khimii (Collection of Works: Problems of Analytical Chemistry), Vol 2, Moscow, Nauka, 1972, pp 138-142 (from Referativnyy Zhurnal -- Khimiya, Srodnyy Tom, No 23(11), 1972, Abstract No 23S349 by T. A. Belyayeva)

Translation: The application of gas chromatography, spectroscopic, and titrimetric methods to determination of the basic substance in the oil emulsion and granulated preparations of yalan was evaluated. Using a thermal conductivity detector, the gas chromatography is carried out at the column temperature of 190°C, with the gas carrier (H_2) flow rate of 240 ml./min. Heat-insulating silanized brick is used the solid phase apiezon M with stearic acid is used as an immobile liquid phase. The relative error of determination does not exceed 3.4%. A study of the IR yalan spectra and of accompanying compounds indicates that the band 1632 cm^{-1} can be used successfully. The titrimetric method is based on the hydrolysis of S-(p-Cl-N-hexamethylenethiocarbamate) at 95°C in the presence of 85% orthophosphoric acid followed by determination of the H_2S formed with the acid-alkalimetric titration (0.1 N solution of NaOH with methyl red indicator). The determination error does not exceed 1.6%.

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USSR UDC 547.492:547.493

AKHMEDOV, SH. T., AKHUNDOVA, M. A., ALEKPEROV, R. K., Azerbaydzhan State University

"Synthesis of Substituted β-Phenoxyethyl Esters of Chloroformic Acid"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 10, Oct 71, pp 2127-2129

Abstract: The article describes the synthesis of substituted β-phenoxyethyl esters of chloroformic acid by condensation of substituted β-hydroxyphenetoles with phosgene. The reaction of the synthesized β-o-methylphenoxyethyl chloroformate with ammonia gives the corresponding urethane.

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